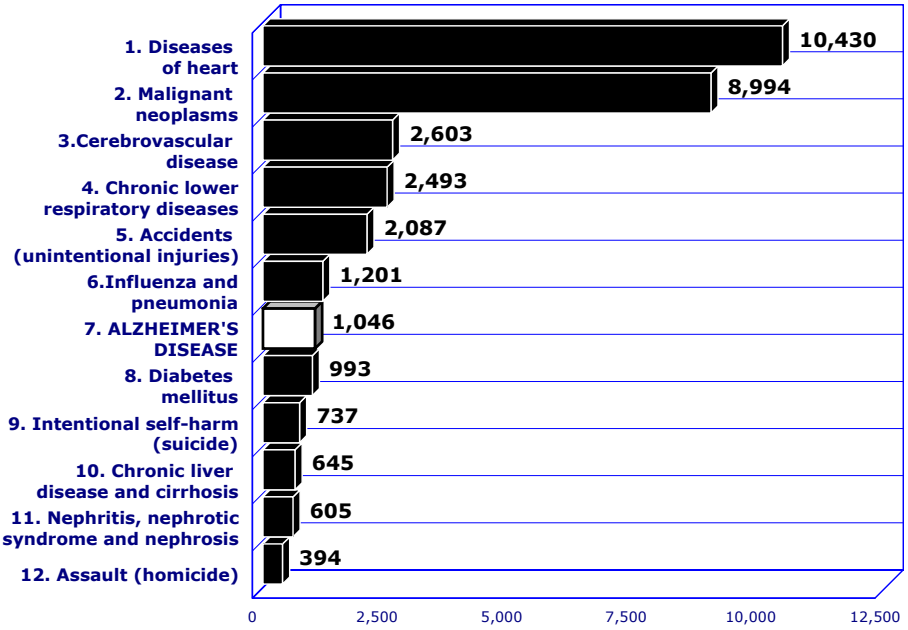
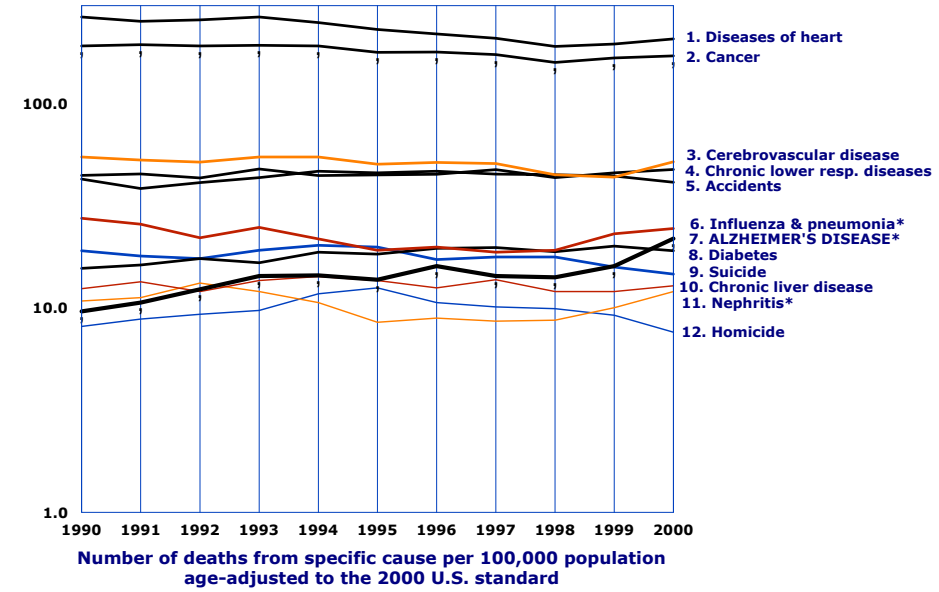
Figure 1
Alzheimer's Disease Among the Leading Causes of Death, Arizona, 2000



The number of deaths from Alzheimer's disease in Arizona in 2000 made Alzheimer's disease the 7th leading cause of deaths for all ages. (**Figure 1**). More Arizonans died in 2000 from Alzheimer's disease than they did from other chronic diseases, such as diabetes, chronic liver disease and cirrhosis, or nephritis (kidney disease).

Figure 2
Trend in Age-Adjusted Mortality Rates for Alzheimer's Disease and Other Leading Causes of Death by Year, Arizona, 1990-2000



Note: Log scale.

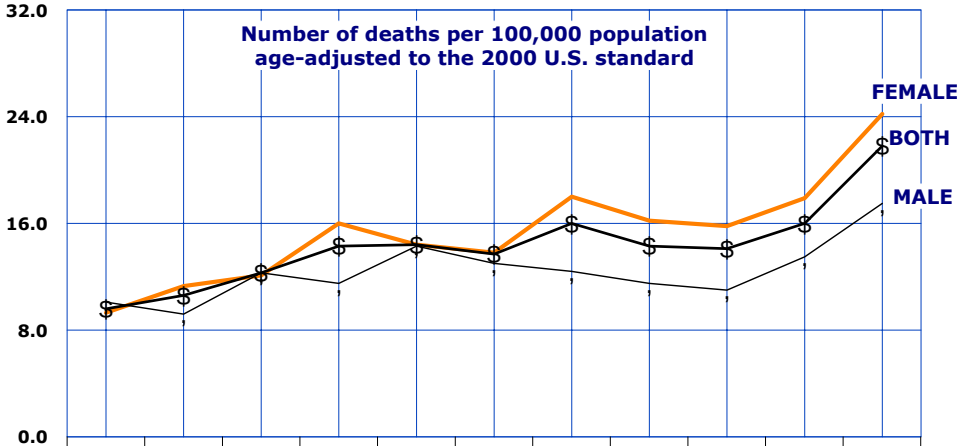
* Comparability-modified rates for 1990-1999.

The trend in mortality from Alzheimer's disease (**Figure 2**) reflects a number of factors such as 1) changes in attitudes of physicians and the public about attributing Alzheimer's disease as a cause of death, 2) availability of improved diagnostic procedures, 3) increase in the number of deaths attributed to Alzheimer's disease due changes in coding and classification of causes of mortality, 4) decreases in several other leading causes of death (homicide, diabetes, suicide, atherosclerosis).

The comparability-modified age-adjusted mortality rate for Alzheimer's disease increased 2.6 times from 9.3/100,000 in 1990 to 24.2/100,000 in 2000 (**Figure 3**). Among males, the comparability-modified age-adjusted mortality rate for Alzheimer's disease increased by 73.3 percent during that time.

In 1990, the Alzheimer's disease mortality risk of females compared to males was 3 percent smaller, while in 2000 the risk was 38.3 percent greater.

Figure 3
Age-Adjusted Mortality Rates for Alzheimer's Disease by Gender and Year, Arizona, 1990-2000



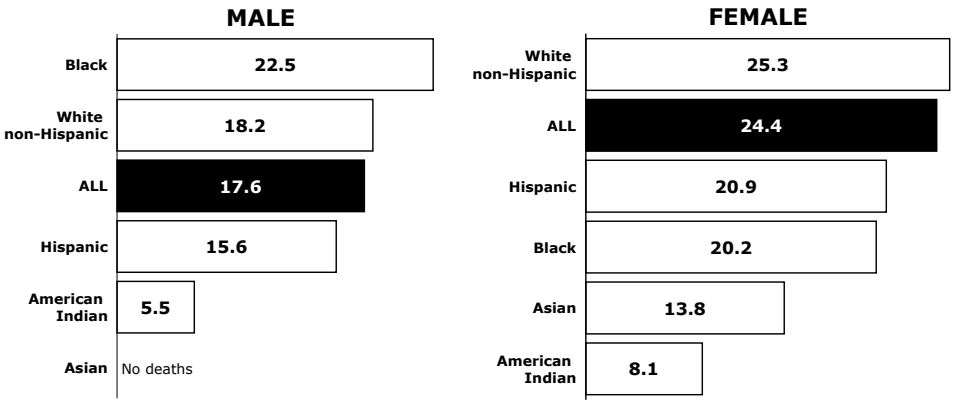
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Both	9.6	10.6	12.3	14.3	14.4	13.7	16.0	14.3	14.1	16.0	21.8
Male	10.1	9.2	12.3	11.5	14.3	13.0	12.4	11.5	11.0	13.5	17.5
Female	9.3	11.3	12.1	16.0	14.4	13.8	18.0	16.2	15.8	17.9	24.2

Note: the rates for 1990-1999 are comparability-modified.

The 2000 death rates for Alzheimer's disease among White non-Hispanic females were the highest among race/gender groups in Arizona (**Figure 4**). Black and White non-Hispanics had the highest death rates for Alzheimer's disease among males.

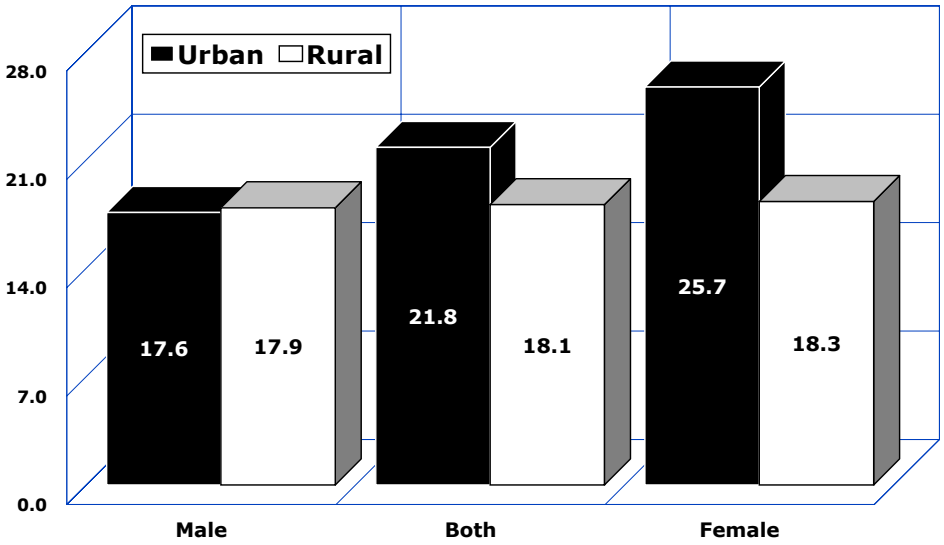
However, the death rate for Black males, based on only five deaths, is unlikely to be reliable. In contrast, White non-Hispanic males accounted for 297 deaths from Alzheimer's disease, and White non-Hispanic females for 662 (or 92 percent of all Alzheimer's deaths among Arizona females).

Figure 4
Age-Adjusted Mortality Rates for Alzheimer's Disease by Gender and Race/Ethnic Group, Arizona, 2000



Number of deaths per 100,000 population in specified group age-adjusted to the 2000 U.S. standard

Figure 5
Age-Adjusted Mortality Rates for Alzheimer's Disease by Gender in Urban and Rural Areas, Arizona, 2000

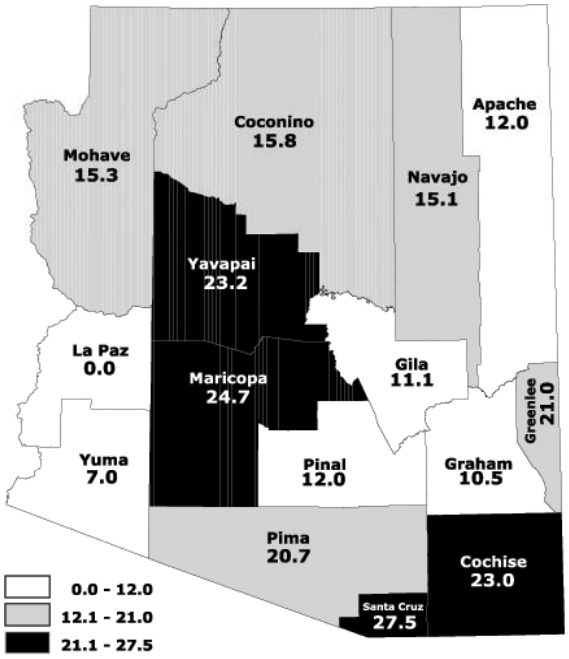


Number of deaths per 100,000 population age-adjusted to the 2000 U.S. standard

*Urban: Maricopa, Pima, Pinal, and Yuma counties. The remaining counties comprise Arizona's rural areas.

In 2000, the mortality rate for Alzheimer's disease was 20.4 percent higher for urban (21.8/100,000) than rural (18.1/100,000) residents of the State (**Figure 5**). The mortality disadvantage of the urban compared to rural residents was particularly pronounced among females. The 2000 rate of the urban females was 40.4 percent greater than the rate of the rural females (25.7/100,000 vs. 18.3/100,000). In contrast, the mortality rates for Alzheimer's disease among males were similar in the urban and rural areas.

Figure 6
Age-Adjusted Mortality Rates* for Alzheimer's Disease by County of Residence, Arizona, 2000



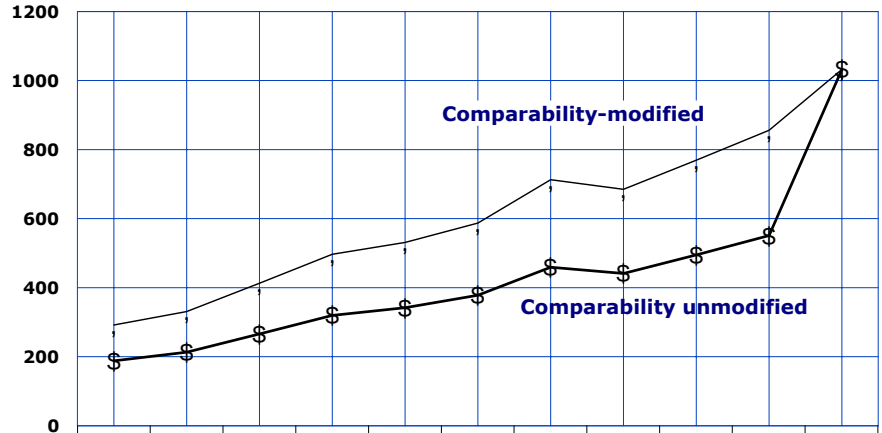
*per 100,000 population (Age-adjusted to 2000 standard)

In 2000, mortality from Alzheimer's disease among the fifteen Arizona counties ranged from no deaths in La Paz County to a rate of 27.5 deaths per 100,000 persons in Santa Cruz County (**Figure 6**). Maricopa and Yavapai counties, which accounted for approximately 63 percent of the total population of the State, made a substantially higher contribution to mortality from Alzheimer's disease (737 out of 1,046 deaths, or 70.5 percent of all deaths from Alzheimer's disease). These two counties accounted for 64 percent of all Arizonans 85 years and older in the State, the group at the highest risk of death from Alzheimer's disease.

The magnitude of the increases in mortality from Alzheimer's disease (**Figure 7**) may be problematic. The available comparability ratio for Alzheimer's disease of 1.5536 is based on the 1996 U.S. mortality data, and it may substantially underestimate later increases in 1997, 1998, and 1999. The comparability ratio based on 1999 data could be as high as 1.9

The comparability ratio of 1.9 applied to the (unmodified) 1999 data would produce 1,047 deaths from Alzheimer's disease (551X1.9) in that year, suggesting that mortality may have actually decreased from 1999 to 2000.

Figure 7
Comparability-modified* and Comparability-unmodified Mortality from Alzheimer's Disease Among Arizona Elderly Residents 65 Years and Older, 1990-2000

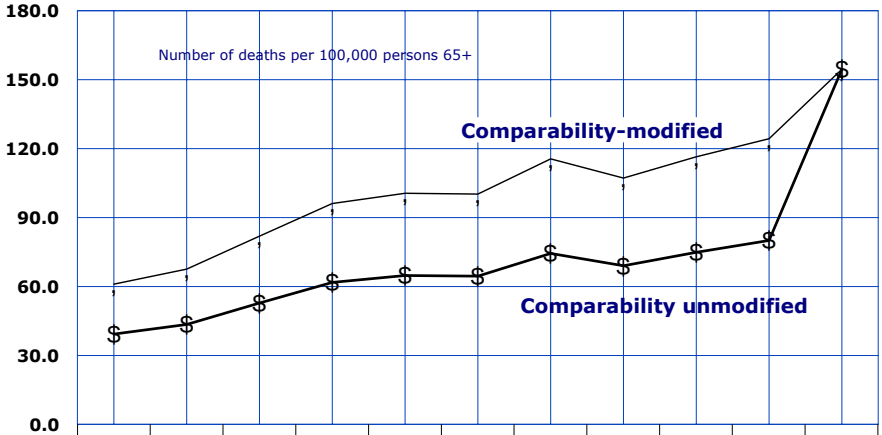


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Comparability unmodified	188	213	266	320	342	378	459	441	495	551	1032
Comparability modified	292	331	413	497	531	587	713	685	769	856	1032

* Comparability-modified: the annual number of deaths for 1990-1999 that would have been classified as Alzheimer's disease had the ICD-10 classification system and rules for coding been in place.

The magnitude of the increases in mortality rates for Alzheimer's disease (**Figure 8**) is, of course, equally problematic. The comparability ratio of 1.9 (rather than 1.5536) applied to the (unmodified) 1999 rate would produce a comparability-modified rate of 152.0 /100,000 (80.0X1.9) in that year, only slightly smaller than the rate recorded in the year 2000.

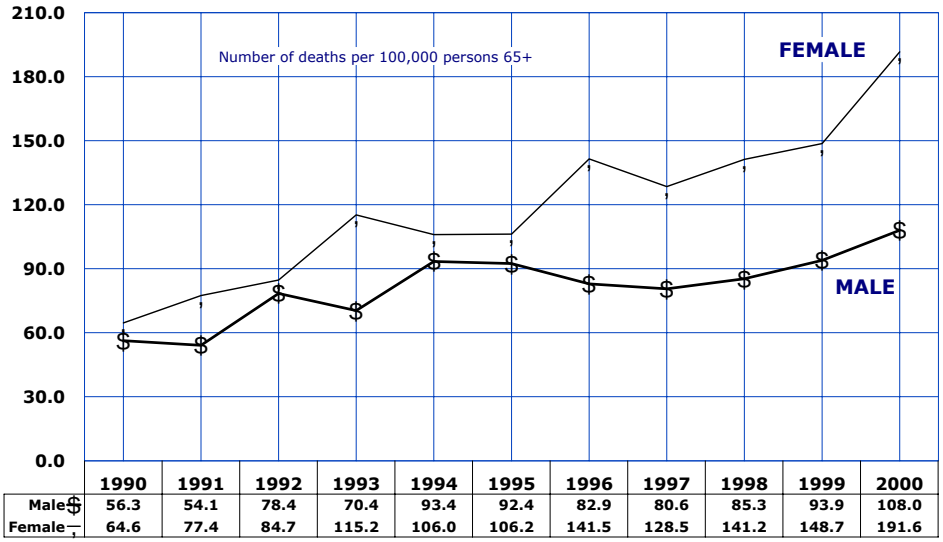
Figure 8
Comparability-modified* and Comparability-unmodified Mortality Rates for Alzheimer's Disease Among Arizona Elderly Residents 65 Years and Older, 1990-2000



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Comparability unmodified	39.3	43.5	52.8	61.8	64.8	64.5	74.4	69.0	74.9	80.0	154.5
Comparability modified	61.0	67.6	81.9	96.1	100.6	100.2	115.5	107.2	116.4	124.3	154.5

* Comparability-modified rates: the rates based on the annual number of deaths for 1990-1999 that would have been classified as Alzheimer's disease had the ICD-10 classification system and rules for coding been in place.

Figure 9
Mortality Rates for Alzheimer's Disease by Gender and Year Among Arizona Elderly Residents 65 Years and Older, 1990-2000

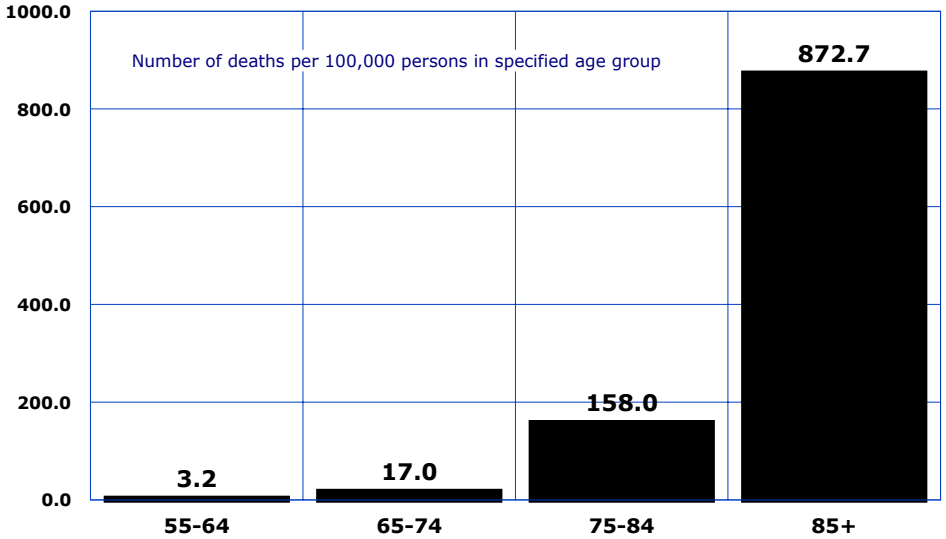


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Male	56.3	54.1	78.4	70.4	93.4	92.4	82.9	80.6	85.3	93.9	108.0
Female	64.6	77.4	84.7	115.2	106.0	106.2	141.5	128.5	141.2	148.7	191.6

* The rates for 1990-1999 are comparability-modified.

The comparability-modified death rate for *Alzheimer's disease*, the fifth leading cause of elderly female mortality in Arizona in 2000, almost tripled from 64.6/100,000 in 1990 to 191.6/100,000 in 2000 (**Figure 9**). For elderly males, the mortality rate for Alzheimer's disease, their seventh leading cause of death, increased by 91.8 percent from 56.3/100,000 in 1990 to 108.0/100,000 in 2000. In 1990, the *Alzheimer's disease* mortality risk of elderly females compared to males was 14.7 percent greater, while in 2000 the risk was 77.4 percent greater.

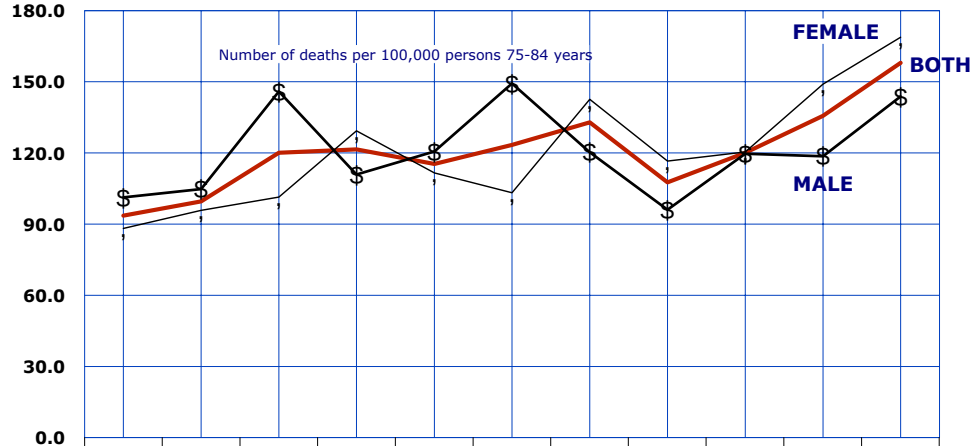
Figure 10
Age-Specific Mortality Rates for Alzheimer's Disease Among Arizonans Aged 55 and Over in 2000



Risk of death from Alzheimer's disease increases sharply with age (**Figure 10**). In the eleven-year period from 1990 to 2000, only four deaths from Alzheimer's disease were to Arizonans under age 55. In 2000, nine out of every ten deaths from Alzheimer's disease were to persons aged 75 and older.

Mortality rates for Alzheimer's disease among Arizonans 75-84 years old were higher among females than males in 6 of the eleven years from 1990 to 2000 (**Figure 11**). In 2000, the Alzheimer's disease mortality risk of elderly females compared to males in this age group was 17.4 percent greater (168.8 deaths per 100,000 females vs. 143.8 deaths per 100,000 males).

Figure 11
Mortality Rates for Alzheimer's Disease by Gender and Year Among Arizonans 75-84 Years Old, 1990-2000

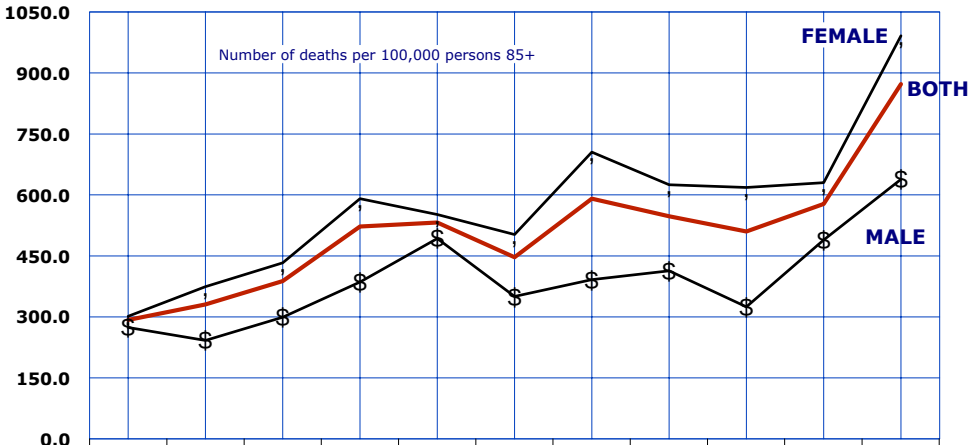


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Male	101.3	104.8	145.9	110.9	120.6	149.3	120.3	96.1	119.7	118.6	143.8
Female	88.2	95.8	101.4	129.3	111.6	103.2	142.6	116.6	120.4	149.0	168.8
Total	93.6	99.6	120.1	121.5	115.4	123.4	132.9	107.6	120.1	135.7	158.0

* The rates for 1990-1999 are comparability-modified.

Among Arizonans 85 years and older, the mortality rates for Alzheimer's disease among females exceeded the male rates in every year from 1990 to 2000 (**Figure 12**). In 1990, the *Alzheimer's disease* mortality risk of elderly females compared to males in this age group was 10 percent greater, while in 2000 the risk was 55.3 percent greater.

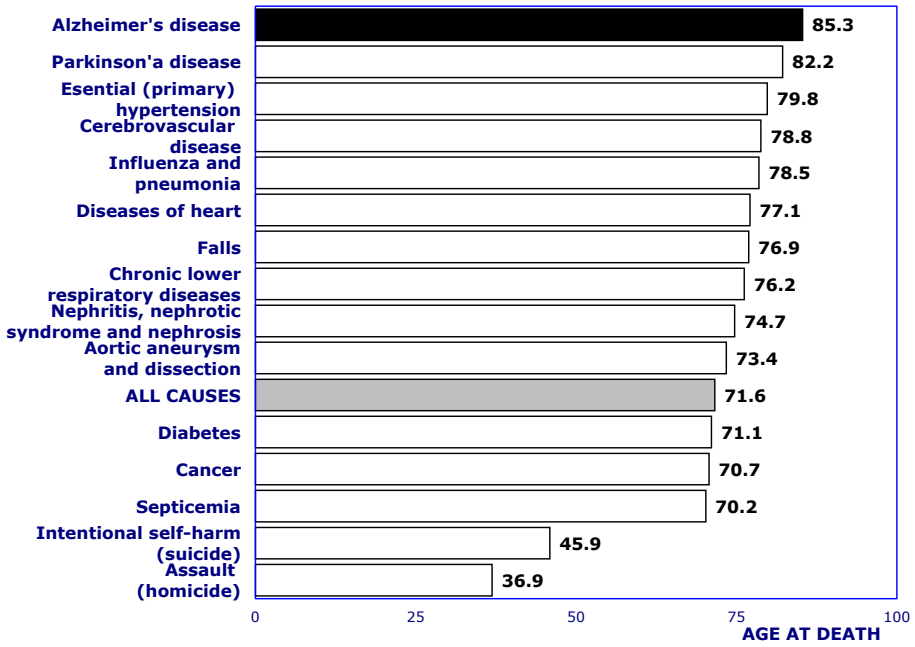
Figure 12
Mortality Rates for Alzheimer's Disease by Gender and Year Among Arizonans 85 Years and Older, 1990-2000



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Male	274.1	242.3	299.1	385.9	492.9	350.4	391.5	413.5	324.8	489.3	638.4
Female	301.5	374.5	432.9	590.9	552.0	502.6	705.2	624.8	618.5	630.0	991.3
Total	292.5	330.5	388.3	522.4	532.1	446.9	590.7	547.4	510.3	578.0	872.7

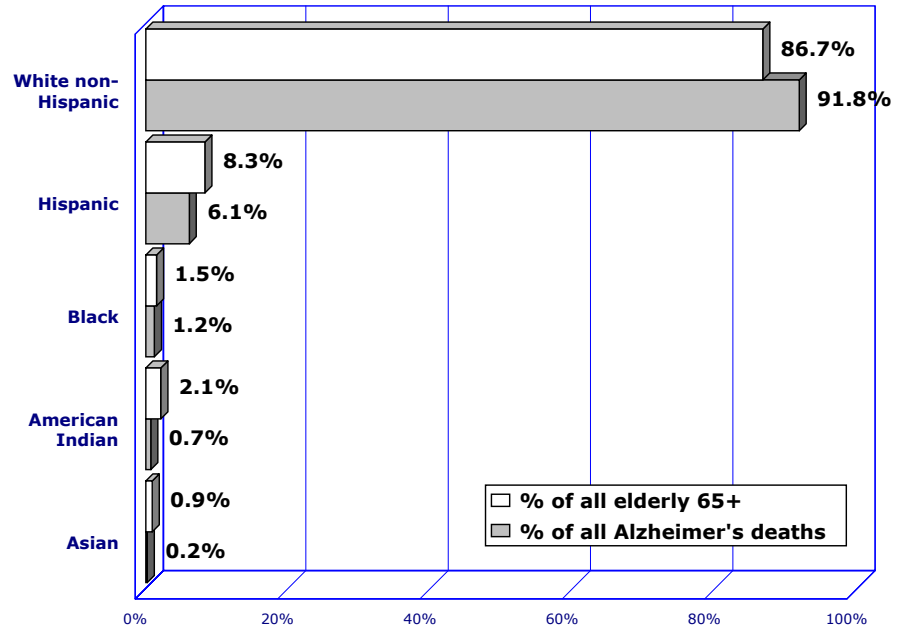
* The rates for 1990-1999 are comparability-modified.

Figure 13
Average Age At Death for Selected Leading Causes of Death, Arizona, 2000



In 2000, Alzheimer's disease had the highest average age at death of 85.3 years, exceeding the average age at death for all causes by 14 years (**Figure 13**). Only 11.9 percent of deaths from Alzheimer's disease occurred before the age of 76.7 years, i.e., before the expected years of life were reached.

Figure 14
Percent of Elderly 65+ by Race/Ethnicity and Proportional Contribution to Mortality from Alzheimer's Disease, Arizona, 2000



White non-Hispanic elderly residents of Arizona disproportionately contributed to total mortality from Alzheimer's disease. In 2000, White non-Hispanics accounted for 86.7 percent of all elderly 65 years and older, but 91.8 percent of all deaths from Alzheimer's disease (**Figure 14**).

White non-Hispanic residents of the State may be at higher risk for Alzheimer's disease because they live longer than the other race/ethnic groups. In 2000, White non-Hispanics were the only group with less than 50 percent of all deaths (47.3 percent) occurring before the expected years of life were reached. The 2000 premature death ratio was 38.7 percent for White non-Hispanic females and 55.4 percent for White non-Hispanic males. In contrast, at least 70 percent of deaths among ethnic minorities. occurred prematurely.